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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,727	12/26/2001	Sukanta Banerjee	4364-4005	1379

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EXAMINER	
YANG, NELSON C	
ART UNIT	**PAPER NUMBER**
1641	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/034,727	BANERJEE ET AL.	
	Examiner	Art Unit	
	Nelson Yang	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *83-86,88,89 and 91-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *83-86,88,89 and 91-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

2. Claims 83-86, 88-89, 91-96 are currently pending.

Rejections Withdrawn

3. Applicant's arguments, see p. 2-3, filed October 10, 2006, with respect to the rejection(s) of claim(s) 83-86, 88, 89, 91-96 under 35 U.S.C. 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Walt et al [US 6,327, 410], as discussed below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 83, 85, 86, 89, 91-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al [US 6,887,701] in view of Walt et al [US 6,327,410].

With respect to claim 92, Anderson et al teach a method comprising attaching agents of interest to particles that are suspended in a polymerizing medium, which is used to fill tubules used to make array bundles and arrays (column 3, lines 57-61). The particles may further be labeled with different fluorescently labeled analytes for competition assays, where each specific

antibody binds to one of the fluorescently labeled analytes (first form of encoding) (column 14, lines 15-32). More specifically, Anderson et al. teach an embodiment where antibodies were immobilized on particulate supports (Poros G) (column 26, line 66 – column 27, line 10), followed by binding with HSA and Tf protein labeled with fluorescein isothiocyanate (column 27, lines 60-65). In addition, the fibers or the gelling material may also contain different dyes (column 22, lines 15-18), thus allowing beads in different fibers to be identified (alternative form of encoding). The fibers may have rectangular and square cross sections (the two opposing planar surfaces) (column 6, lines 6-15). The polymerizing medium may be polymerized by ultraviolet light using a catalyst (column 10, lines 62-67). Anderson et al. fail to specifically teach that the labeling indicates type of biomolecule displayed on particular beads.

Walt et al., however, teach microspheres containing a bioactive agent as well as an unique optical signature (label) that can be used to identify bioactive agent (column 13, lines 7-20). Walt et al. further teach that this allows for a sufficiently structurally diverse population of bioactive agents to effect a probabilistically sufficient range of binding to target analytes (column 9, lines 10-20).

Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to have unique optical signatures for different bioactive agents in the method of Anderson et al., as suggested by Walt et al., in order to create an array with a wide range of bioactive agents, such that unknown analytes would have a greater chance of being identified.

6. With respect to claim 83, Anderson et al teach the use of fluorescent labels (column 14, lines 15-32), which would be color.

7. With respect to claims 85-86, Anderson et al teach immobilized antibodies (proteins) (column 14, lines 23-25)

8. With respect to claim 89, Anderson et al teach 5 micron diameter particles (column 27, lines 20-32).

9. With respect to claim 91, Anderson et al teach a method comprising attaching agents of interest to particles that are suspended in a polymerizing medium, which is used to fill tubules used to make array bundles and arrays (column 3, lines 57-61). The particles may further be labeled with different fluorescently labeled analytes for competition assays, where each specific antibody binds to one of the fluorescently labeled analytes (first form of encoding) (column 14, lines 15-32). More specifically, Anderson et al. teach an embodiment where antibodies were immobilized on particulate supports (Poros G) (column 26, line 66 – column 27, line 10), followed by binding with HSA and Tf protein labeled with fluorescein isothiocyanate (column 27, lines 60-65). In addition, different fibers or the gelling material in different fibers may also contain different dyes (column 22, lines 15-18), thus allowing beads in different fibers to be identified (alternative form of encoding). The fibers may have rectangular and square cross sections (the two opposing planar surfaces) (column 6, lines 6-15). The polymerizing medium may be polymerized by ultraviolet light using a catalyst (column 10, lines 62-67). Anderson et al further teach silica, cellulose, Sepharose beads, polystyrene (solid, porous and derivitized) beads, controlled-pore glass, gel beads, sols, biological cells, viruses, subcellular particles. Anderson et al fail to specifically teach magnetic beads.

Walt et al, however, teach that beads can be made from a variety of compositions including, but not limited to, plastics, ceramics, glass, polystyrene, methylstyrene, acrylic

polymers, paramagnetic materials, thoria sol, carbon graphited, titanium dioxide, latex or cross-linked dextrans such as Sepharose, cellulose, nylon, cross-linked micelles and Teflon (column 7, lines 20-30).

Therefore, since Walt et al shows that beads made from paramagnetic materials and polystyrene are equivalent structures known in the art, because these two beads were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute paramagnetic beads for polystyrene beads

10. With respect to claim 93, the open ends of the capillaries may be sealed against a flat plate (column 22, lines 32-35) or a solid phase material may be attached to one end of the bundle (column 22, lines 45-50)

11. With respect to claim 94, the sides of the fibers (column 3, lines 57-61, column 6, lines 6-15)) would define the thickness of the gel embedded particle assembly.

12. With respect to claim 95, the beads suspended in the polymer must be capable of binding to analytes in a multiple competition assay (column 14, lines 25-32) such as proteins (column 14, lines 15-20), so therefore the polymer is permeable to macromolecules.

13. With respect to claim 96, the gel assembled bead assembly is self supporting, as the solid phase material is not required for the bundle (it is used in an alternative embodiment) (column 22, liens 45-52).

14. Claim 84 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al [US 6,887,701] in view of Walt et al [US 6,327,410] in light of Domschke et al [US 6,897,271].

With respect to claim 84, Anderson et al teach that the polymer may be comprised of acrylamide gels (column 10, lines 50-67), which one of ordinary skill in the art would know the be hydrophilic, as evidenced by Domschke et al (column 2, lines 63-68).

15. Claim 88 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al [US 6,887,701] in view of Walt et al [US 6,327,410] and further in view of Bryan et al [US 6,458,547].

With respect to claim 88, Anderson et al teach a method comprising attaching agents of interest to particles that are suspended in a polymerizing medium, which is used to fill tubules used to make array bundles and arrays (column 3, lines 57-61). The particles may further be labeled with different fluorescently labeled analytes for competition assays, where each specific antibody binds to one of the fluorescently labeled analytes (first form of encoding) (column 14, lines 15-32). More specifically, Anderson et al. teach an embodiment where antibodies were immobilized on particulate supports (Poros G) (column 26, line 66 – column 27, line 10), followed by binding with HSA and Tf protein labeled with fluorescein isothiocyanate (column 27, lines 60-65). In addition, the fibers or the gelling material may also contain different dyes (column 22, lines 15-18), thus allowing beads in different fibers to be identified (alternative form of encoding). The fibers may have rectangular and square cross sections (the two opposing planar surfaces) (column 6, lines 6-15). The polymerizing medium may be polymerized by ultraviolet light using a catalyst (column 10, lines 62-67). Anderson et al further teach that a solid phase material (substrate) may be attached to one end of the bundle (column 22, liens 45-50). Anderson et al do not teach that the solid phase material comprises a silicon chip.

Bryan et al, however, teach the use of silicon chips (column 14, lines 14-21, 45-50), and further teach that the chip is adaptable for use in an array format for the detection and identification of agents in a biological sample with the device (column 5, lines 20-25), using circuits for integrating the output data signals and accumulating them, and further generating an output device signal, in order to generate visible indicia related to the presence of the analytes (column 5, lines 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art for the solid phase material to be a silicon chip in the device of Anderson et al et al, as suggested by Bryan et al, in order to adapt the device for use in the detection and identification of analytes and generation of visible indicia related to the presence of the analytes.

Response to Arguments

16. Applicant's arguments with respect to claims 83-86, 88-89, 91-96 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

17. No claims are allowed.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY

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